

What is claimed is:

1. A QAM (Quadrature Amplitude Modulation) transmitting apparatus having a multiplicity of transmission bands with
5 variable transmission rates, comprising:

TC (Transmission Convergence) sub-layer means for performing frame processing and error correction for TX (transmitting) data;

band splitting means for distributing the TX data
10 preprocessed by the TC sub-layer means to a predetermined number of band TX processing means;

the band TX processing means for symbol-encoding the output data of the band splitting means, pulse-shaping and interpolating the symbol-encoded data, and converting the
15 interpolated TX data to a passband signal;

synthesizing means for synthesizing the passband signal outputted from a predetermined number of the band TX processing means; and

digital-to-analog converting and outputting means for
20 converting the synthesized digital TX data to an analog synthesized TX signal to output.

2. The QAM transmitting apparatus as recited in claim 1, wherein data transmission rate of the TC sub-layer means is
25 equal to sum of data transmission rates of the band TX processing means.

3. The QAM transmitting apparatus as recited in claim 1, wherein the band splitting means distributes the TX data matching transmission rate to each of the band TX processing means.

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4. The QAM transmitting apparatus as recited in claim 1, wherein the band splitting means distributes the TX data to each of the band TX processing means in unit of byte.

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5. The QAM transmitting apparatus as recited in claim 1, wherein the band TX processing means encodes the TX data in unit of byte.

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6. A QAM (Quadrature Amplitude Modulation) receiving apparatus having a multiplicity of transmission bands with variable transmission rates, comprising:

analog-to-digital converting means for converting an analog signal received through a transmission line to a digital RX (receiving) signal;

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band distributing means for distributing the digital RX signal to a predetermined number of band RX processing means;

the band RX processing means for converting the RX signal distributed from the band distributing means to a baseband signal, compensating signal distortion of the baseband signal caused by the transmission line, and converting the

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compensated RX signal by QAM-decoding to a symbol;

band multiplexing means for multiplexing the output data

from the predetermined number of the band RX processing means;
and

TC (Transmission Convergence) sub-layer means for
performing frame processing and error correction for the
5 multiplexed RX data from the band multiplexing means.

7. The QAM receiving apparatus as recited in claim 6,
wherein the band multiplexing means multiplexes the RX data to
each of the band RX processing means with matching
10 transmission rate.

8. The QAM receiving apparatus as recited in claim 6,
wherein the band multiplexing means distributes the RX data to
the TC sub-layer means in unit of byte.
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9. The QAM receiving apparatus as recited in claim 6,
wherein the band RX processing means encodes the RX data in
unit of byte.
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